

**Restriction Can Be Proper In Limited Circumstances.**

An application may properly be restricted to one of two or more claimed inventions if they are able to support separate patents and they are either *independent* or *distinct*. If a search and examination of an entire application can be made *without serious burden*, the Examiner *must* examine it on the merits, even though it includes claims to independent or distinct inventions. MPEP 803. In referring to practice under 35 U.S.C. 121, the MPEP notes "it becomes very important that the practice under this section be carefully administered," and goes on to state "IT STILL REMAINS IMPORTANT FROM THE STANDPOINT OF THE PUBLIC INTEREST THAT NO REQUIREMENTS BE MADE WHICH MIGHT RESULT IN THE ISSUANCE OF TWO PATENTS FOR THE SAME INVENTION." MPEP 803.01 (Emphasis in original). The concern is that the public should be able to rely on the assumption that upon expiration, the public will be free to use not only the invention claimed in the patent, but also modifications and variants thereof. MPEP 804.

**Claims Are Not Independent**

The term "*independent*" means that there is no disclosed relationship between the two or more subjects disclosed, that is they are unconnected in design, operation, or effect. MPEP 802.01. Each of the claims is generally directed to apparatus or methods of coupling a shunt load across at least a portion of a fuel cell stack in response to a stack terminal voltage. Thus, the claims are *not* independent.

**Claims Are Not Distinct**

The term "distinct" means that two or more subjects as disclosed are related, but are capable of separate manufacture, use, sale as claimed, AND ARE PATENTABLE (novel and unobvious) OVER EACH OTHER (though they may each be unpatentable because of the prior art). MPEP 802.01 (Emphasis in original).

**Claims of Groups I and II Are Not Distinct**

Inventions related as combination and subcombination can be shown to be distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination, and (2) that the subcombination has utility by itself or in other combinations (MPEP 806.05(c)).

The Examiner contends that “the fuel cell stack assembly per se does not require the electrical means for operation, that is, the fuel cell can comprises [sic] any other automatic control responsive to temperature or pressure.” Applicants respectfully disagree with this characterization.

Claim 1 generally recites a fuel cell stack assembly comprising a set of fuel cells, a threshold detector responsive to a stack terminal voltage across the set of fuel cells, a dump load and a transistor that selectively couples the dump load across the set of fuel cells in response to the stack voltage exceeding a threshold voltage..

Claim 10 recites a shunt regulator for a fuel cell stack comprising a transistor responsive to a fuel cell stack terminal voltage on a high voltage bus of the fuel cell stack and a dump load selectively coupleable to the high voltage bus in parallel with the fuel cell stack by the transistor while the fuel cell stack terminal voltage exceeds a threshold voltage.

Claim 15 recites a shunt regulator for a fuel cell assembly comprising load dumping means and transistorized threshold detection and switching means. . . for selectively coupling the load dumping means across the fuel cell stack in response to the stack terminal voltage exceeding a threshold.

Applicants do not understand what the Examiner is referring to with respect to “electrical means for operation.” However, both claims 1 and 10 recite a transistor that selectively couples a dump load across the fuel cells in response to a stack voltage exceeding a threshold. The subcombination does not appear to have any utility by itself, and it does not appear possible to infringe claim 10 or 15 without infringing claim 1. Examiner’s reference to “automatic control responsive temperature or pressure” appears completely unrelated to the present application or to claims 1, 10 and 15.

### **Claims of Groups III and II Are Not Distinct**

A process and apparatus for its practice can be shown to be distinct inventions if either or both of the following can be shown: (1) that the process *as claimed* can be practiced by another materially different apparatus or by hand, or (2) that the apparatus *as claimed* can be used to practice another and materially different process. MPEP 806.05(e).

The Examiner contends that the inventions of claims 10 and 16 are distinct because “the apparatus as claimed can be used to practice another and materially different process, for example, the fuel cell stack can be operated by determining a voltage across a portion of the fuel cell stack, or by determining a voltage across a power bus of a fuel cell

stack (*as admitted by the applicant*); or in alternative manner, by automatic controlling means responsive either to temperature or pressure as well.” Applicants respectfully disagree with this characterization.

Claim 10 recites a shunt regulator for a fuel cell stack comprising a transistor responsive to a fuel cell stack terminal voltage on a high voltage bus of the fuel cell stack and a dump load selectively coupleable to the high voltage bus in parallel with the fuel cell stack by the transistor while the fuel cell stack terminal voltage exceeds a threshold voltage.

Claim 15 recites a shunt regulator for a fuel cell assembly comprising load dumping means and transistorized threshold detection and switching means. . . for selectively coupling the load dumping means across the fuel cell stack in response to the stack terminal voltage exceeding a threshold.

Claim 16 recites a method of operating a fuel cell stack comprising determining a voltage across at least a portion of a fuel cell stack and selectively operating a transistorized switch to place a dump load across the fuel cell stack when the voltage exceeds a threshold.

The article recited in claims 10 and 15 appears necessary for practicing the method of claim 16, while the method of claim 16 appears necessary for using the article of claims 10 and 15. While the claimed article and method are patentable over each other, they are not capable of separate manufacture, use, or sale. In particular, the method is shunting the fuel cell stack with the dump load in response to a stack voltage exceeding a threshold. Thus, claim 16 does not appear to be *distinct* with respect to claims 10 and 15, and restriction between the claims is not proper. MPEP 806.05(e).

#### **Claims of Groups II and III Are Not Distinct**

A process and apparatus for its practice can be shown to be distinct inventions, if either or both of the following can be shown: (1) that the process *as claimed* can be practiced by another materially different apparatus or by hand, or (2) that the apparatus *as claimed* can be used to practice another and materially different process. MPEP 806.05(e).

The Examiner contends that the inventions of claims 10 and 16 are not capable of use together, stating, “the different inventions they have different modes of operation, different functions, or different effects, for example, the shunt regulator is an

electrical regulation feature while the method is for operating a fuel cell stack.” Applicants respectfully disagree with this characterization.

Claim 10 recites a shunt regulator for a fuel cell stack comprising a transistor responsive to a fuel cell stack terminal voltage on a high voltage bus of the fuel cell stack and a dump load selectively coupleable to the high voltage bus in parallel with the fuel cell stack by the transistor while the fuel cell stack terminal voltage exceeds a threshold voltage.

Claim 15 recites a shunt regulator for a fuel cell assembly comprising load dumping means and transistorized threshold detection and switching means. . . for selectively coupling the load dumping means across the fuel cell stack in response to the stack terminal voltage exceeding a threshold.

Claim 16 recites a method of operating a fuel cell stack comprising determining a voltage across at least a portion of a fuel cell stack and selectively operating a transistorized switch to place a dump load across the fuel cell stack when the voltage exceeds a threshold.

In this case the method of operating the fuel cell stack includes shunting which is *inherently* an electrical regulation feature. As discussed previously, the article recited in claims 10 and 15 appears necessary for practicing the method of claim 16, while the method of claim 16 appears necessary for using the article of claims 10 and 15. While the claimed article and method are patentable over each other, they are not capable of separate manufacturer, use, or sale. In particular, the recited method is shunting the fuel cell stack with the dump load in response to a stack voltage exceeding a threshold. Thus, claims 10 and 15 do *not* appear to be *distinct* with respect to claim 16 and restriction between the claims is not proper. MPEP 806.05(e).

**Generic and Species Claims With Respect to Group III Is Improper.**

Species 1 does *not* read on any claim. In particular, claim 16 recites “determining a voltage across *at least* a portion of a fuel cell stack” thus encompassing any claims that may be directed to “determining a voltage across a power bus of a fuel cell stack.” Thus, claims 1, 10 and 15 include the material limitation of claim 16, and are a single species of the generic claim 16. Restriction between claims 1, 10, 15 and 16 is therefore not proper. MPEP 806.04(d).

**The Examiner Has Not Met His Initial Burden.**

It is further noted that the burden is on the Examiner to provide *reasonable* examples that recite *material differences*. MPEP 806.05(e). The examples presented by the Examiner appear unsupportable, as discussed above. For example, how is it possible to operate the apparatus of claims 1, 10 or 15 without infringing claim 16? The Examiner appears to be asserting that the basis for the restriction is that one claim is directed to a method while the others are directed to apparatus. However, this alone is not sufficient to support the contention that the claims are independent or distinct..

**The Claims Are So Related As To Present No Serious Burden To The Examiner.**

Applicants' Attorney is unable to discern how searching the entire application would present a *serious burden* to the Examiner. By entering the Restriction Requirement, the Examiner is contending that while searching the fuel cell stack assembly comprising a threshold detector responsive to a stack terminal voltage, and a transistor responsive to the threshold detector to couple a dump load across the fuel cells (*i.e.*, claim 1), he would not also search art classes that cover a shunt regulator for a fuel cell stack comprising a transistor responsive to a fuel cell stack terminal voltage to coupled a dump load across a voltage bus of the fuel cell stack (*i.e.*, claim 10), and would also not search art classes encompassing methods of selectively operating a transistorized switch to place a dump load across the fuel cell stack in response to a voltage across the at least a portion of the fuel cell stack (*i.e.*, claim 16).

This contention leaves the Applicants wondering whether acquiescing in the restriction requirement would result in an inadequate search of the art. From past experience, it is likely that in addition to art classes encompassing fuel cell stack assemblies having dump loads, the Examiner *will* look to art classes encompassing shunt regulators for fuel cell stacks, and *will* rely on references from such classes to reject the claims directed to the fuel cell stack assembly. Likewise, the Examiner *will* likely look to art classes encompassing methods of placing a dump load across at least a portion of the fuel cell stack, and *will* rely on such art in rejecting apparatus claims as being obvious in light of such methods.

Yet, by entering the restriction requirement, the Examiner is admitting that the various claimed embodiments are non-obvious over one another, otherwise the Restriction Requirement would be invalid. MPEP 802.01. Stated differently, the Examiner is admitting that a fuel cell stack assembly comprising a threshold detector, transistor and dump load is non-

obvious with respect to a shunt regulator for a fuel cell stack comprising a transistor responsive to a fuel cell stack terminal voltage and a dump load selectively coupled across the high voltage bus of the fuel cell stack by the transistor. Similarly, the Examiner is admitting that the fuel cell stack assembly and/or the shunt regulator for a fuel cell stack assembly is non-obvious in light of any references directed to methods of selectively operating a transistorized switch to couple a dump load across at least a portion of the fuel cell stack based on a stack voltage. In light of such assertions, the Examiner should be estopped from later contending that art classes encompassing fuel cell stacks are a legitimate area of search for claims directed to shunt regulators for fuel cell stacks and systems and/or methods of coupling dump loads across fuel cell stacks. Likewise, the Examiner should be estopped from relying on art classes encompassing methods of coupling dump loads across fuel cell stacks to reject claims directed to a fuel cell stack assembly and to the shunt regulator for a fuel cell stack.

**Summary**

In making the above arguments, the Applicants do not admit that any of the independent claims are obvious in light of one another. The Applicants further do not admit that such classes are appropriate for search, should the Examiner persist in the restriction requirement. In light of the foregoing remarks, the Applicants respectfully submit that the Restriction Requirement be withdrawn and all pending claims be examined.

Respectfully submitted,

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